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United States Patent [19][11] **Patent Number:** **5,148,422**

Sako et al.

[45] **Date of Patent:** **Sep. 15, 1992****[54] OPTICAL RECORDING MEDIUM HAVING
A DATA RECORDING TRACK WITH
OFFSET DATA STORING REGIONS****[75] Inventors:** Yoichiro Sako, Chiba; Tamotsu
Yamagami, Kanagawa, both of Japan**[73] Assignee:** Sony Corporation, Tokyo, Japan**[21] Appl. No.:** 570,432**[22] Filed:** Aug. 21, 1990**[30] Foreign Application Priority Data**

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369/100; 369/48; 369/275.1****[58] Field of Search 369/44.26, 44.34, 48,
369/54, 275.1, 275.3, 59, 13, 100; 360/77.03****[56] References Cited****U.S. PATENT DOCUMENTS**

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S. Frommer**[57] ABSTRACT**

An optical recording medium for storing optically readable data includes at least one preformed recording track of predetermined width and extending in a predetermined recording direction, the recording track having a recordable region extending in the recording direction thereof for recording data containing clock signal components, the recording track being provided with predetermined offset portions extending in the direction of the width thereof representing offset recorded data, the offset portions being formed such that the offset recorded data has a frequency upon scanning the recording track related by an integral ratio with respect to the clock signal components of the data. When principal information signals are recorded on the track of the recording medium, clock signals are produced with the use of the offset recorded data and, when the principal information signals are reproduced from the recording medium, the offset recorded data are used for accessing, so that record and reproduce clocking may be produced from signals wholly apart from the principal information signals recorded in the recording track. In addition, by providing offset portions of the recording tracks, it is possible to record information outside of the recordable region of the recording track. In one embodiment, the phases of clock components of the principal information signals are recorded therewith so that when these signals are reproduced, a phase locked loop produces reproduced clocking signals having a frequency based upon the offset data signals and a phase determined by the signals recorded in the recordable region. This serves to reduce the time required for frequency and phase capturing and eliminates the need to provide a lengthy clock capturing preamble region in the recording track.

14 Claims, 7 Drawing Sheets